

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1, 3, 7, 11-13, 18, and 19 are presently active in this case, Claims 1, 3, 7 and 11 having been amended and Claims 14-17 having been canceled without prejudice or disclaimer by way of the present Amendment.

In the outstanding Official Action, Claims 1, 3, 7, and 11-19 were rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. More specifically, the claims were rejected because it was concluded that the phrase " J_{ref} is a reference critical energy value" and the phrase " d_{ref} is a reference thickness" were not supported by the original specification. While the Applicants disagree with this conclusion, the Claims 1, 3, 7, and 11 have been amended to incorporate the subject matter of Claims 11-14 in order to expedite prosecution. Accordingly, the Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. 112, first paragraph.

Claims 1, 3, 7, 11, and 14-17 were rejected under 35 U.S.C. 103(a) as being unpatentable over the '615 Rehfeld patent (U.S. Patent No. 5,478,615). Claims 3, 11, 15, and 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Garnier et al. (which is believed to be U.S. Patent No. 6,074,732 rather than U.S. Patent No. 5,478,615, as listed in the Official Action). For the reasons discussed below, the Applicants request the withdrawal of the obviousness rejections.

The Applicants submit that a *prima facie* case of obviousness (see MPEP 2143) has cannot be established in the present case because the references, either taken singularly or in combination, do not teach or suggest all of the claim limitations recited in independent Claims 1, 3, 7, and 11.

Claims 1, 3, 7, and 11 of the present application recite, among other features, a polymer film for use as an intermediate layer of a glazing material where the intermediate layer primarily satisfies acoustic property criteria defined in a specified manner, and secondarily satisfies mechanical strength criteria based upon tearing resistance characteristics defined in a specified manner.

Regarding the rejection based upon the Rehfeld et al. reference, the Official Action states that while the Rehfeld et al. reference does not disclose that the intermediate layer thickness is equal to at least $d_{ref} J_{ref}/J_c$, the critical frequency value, the loss factor, shear modulus, critical energy value, or the tearing resistance recited in the claims, these features are directly related to the specific laminated glazing materials used, and that since the reference uses "the same intermediate layer," then these features would be expected to be the same as those claimed, absent a showing of unexpected results. However, it is unclear why it has been concluded that the same intermediate layer is necessarily being used in both the Rehfeld et al. reference and the present invention. The Official Action implies that this is the case because the same materials are being used. However, the independent claims of the present application (as well as dependent Claims 14-17) merely define the intermediate layer as being in the form of a polymeric film, which can have a wide range of characteristics based

upon the specific polymeric material being used, as long as the criteria defined therein are met.

The polymeric film defined in the claims satisfies acoustic and mechanical property criteria defined by a comparison to *reference* characteristics. While the Rehfeld et al. reference may mention the use of a PVB material in two examples described therein, this does not necessarily relate to the teaching of the claimed polymeric film, but corresponds to the reference material. The PVB material is not necessarily the same material as the polymeric film defined in the claims, nor does the PVB film necessarily have the same acoustic and mechanical strength characteristics as the *polymeric film* defined in the claims. (Note that the polymeric film is not defined as a PVB film either in the claims, however this type of material is covered by the scope of the claims if the criteria are met.) Even if the PVB film described in the Rehfeld et al. reference is assumed for the sake of argument to satisfy the mechanical strength criteria defined in the claims, this does not ensure that the acoustic property criteria defined in the claims will also be satisfied by that film.

Furthermore, the Rehfeld et al. reference clearly does not disclose using this PVB material as a reference material used to define the mechanical strength criteria for a polymeric film selected for the intermediate layer. Furthermore, the thickness of the PVB film described in the Rehfeld et al. reference is different than the reference thickness defined in the claim.

The Rehfeld et al. reference describes an acoustic protective glazing for a vehicle. The Official Action indicates that the Rehfeld et al. reference describes an interlayer having certain mechanical properties, and cites column 2, lines 55-57 of the Rehfeld et al. reference for such a teaching. However, the Applicants submit that the Rehfeld et al. reference does not

disclose an intermediate layer that satisfies mechanical strength criteria. *The Rehfeld et al. reference merely describes the selection of the material based upon acoustic criteria.*

Column 2, lines 55-57 of the Rehfeld et al. reference does not discuss mechanical properties of the interlayer, but rather noise generating features of land vehicles. Furthermore, the Rehfeld et al. reference clearly does not disclose an intermediate layer that satisfies mechanical strength criteria *based upon tearing resistance characteristics*, as specified in the claims of the present application. The Rehfeld et al. reference does not even mention tearing resistance characteristics.

Furthermore, the Applicants submit that it would not have been obvious to one of ordinary skill in the art to optimize a layer based on the teachings in the Rehfeld et al. reference to arrive at the present invention as suggested in the Official Action. How would one of ordinary skill in the art know that the criteria is based upon the thickness, and then know how to determine the optimum thickness? The Rehfeld et al. reference does not disclose the characteristics defined in the independent claims of the present application upon which those optimizations would have to be based. Additionally, it was not obvious to establish the mechanical strength criteria, then the thickness of the interlayer, which is based on the critical energy value specific to the material, and on the critical energy value and thickness value of the PVB reference. Prior to the present invention, a sample interlayer was tested to determine if it had sufficient strength by assembling the glazing and destroying the glazing by dropping a weight on the glazing. Such testing is not necessary with the present invention.

Accordingly, the Applicants respectfully request the withdrawal of the obviousness rejection of Claims 1, 3, 7, and 11 in view of the Rehfeld et al. reference.

Regarding the rejection of Claims 3 and 11 in view of the Garnier et al. reference, the Applicants submit that the references do not teach or suggest a polymer film for use as an intermediate layer of a glazing material where the intermediate layer primarily satisfies acoustic property criteria defined in a specified manner, and secondarily satisfies mechanical strength criteria based upon tearing resistance characteristics defined in a specified manner.

The Garnier et al. reference is cited for the teaching of an intermediate film with improved acoustic performance and improved mechanical properties. As noted in the Official Action, the Garnier et al. reference discusses an improvement in mechanical properties in column 4, lines 35-45. However, the Garnier et al. reference describes achieving such an improvement in mechanical properties by adding an additional film to the “expensive acoustic film.” The Garnier et al. reference does not disclose or suggest selecting the “expensive acoustic film” by ensuring that the “expensive acoustic film” satisfies mechanical strength criteria. It is not the “expensive acoustic film” that satisfies the mechanical properties, but rather an additional “inexpensive film” that provides the improved mechanical properties. The Garnier et al. reference does not disclose a film that satisfies both acoustic property criteria, and mechanical strength criteria based upon tearing resistance characteristics defined in the manner set forth in Claims 3 and 11 of the present application.

Thus, a *prima facie* case of obviousness cannot be established with respect to Claims 3 and 11 in view of the Garnier et al. reference. Accordingly, the Applicants respectfully

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request the withdrawal of the obviousness rejection of Claims 3 and 11 based upon the
Garnier et al. reference.

Claims 12-19 are considered allowable for the reasons advanced for Claims 1, 3, 7,
and 11 from which they depend. These claims are further considered allowable as they recite
other features of the invention that are neither disclosed, taught, nor suggested by the applied
references when those features are considered within the context of Claims 1, 3, 7, and 11.

Consequently, in view of the above discussion, it is respectfully submitted that the
present application is in condition for formal allowance and an early and favorable
reconsideration of this application is therefore requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Attorney of Record
Registration No. 25,599

Christopher D. Ward
Registration No. 41,367

Customer Number

22850

Tel. (703) 413-3000
Fax. (703) 413-2220
(OSMMN 10/01)

GJM/CDW/brf
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